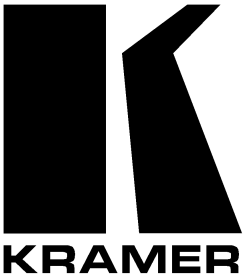
Kramer Electronics, Ltd.



USER MANUAL

Model:

VM-1045

Video Component Distributor

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **VM-1045** *Video Component Distributor.*

The **VM-1045** is ideal for:

- Computer and workstation RGBS distribution
- Video duplication studios, delivering undiminished quality video duplicates
- Broadcast component signal distribution

Each package includes the following items:

- **VM-1045** *Video Component Distributor*
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.

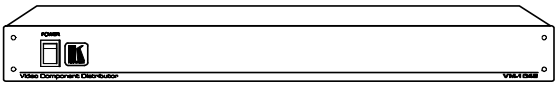
1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

Step 1: Mount the machine - see section 5

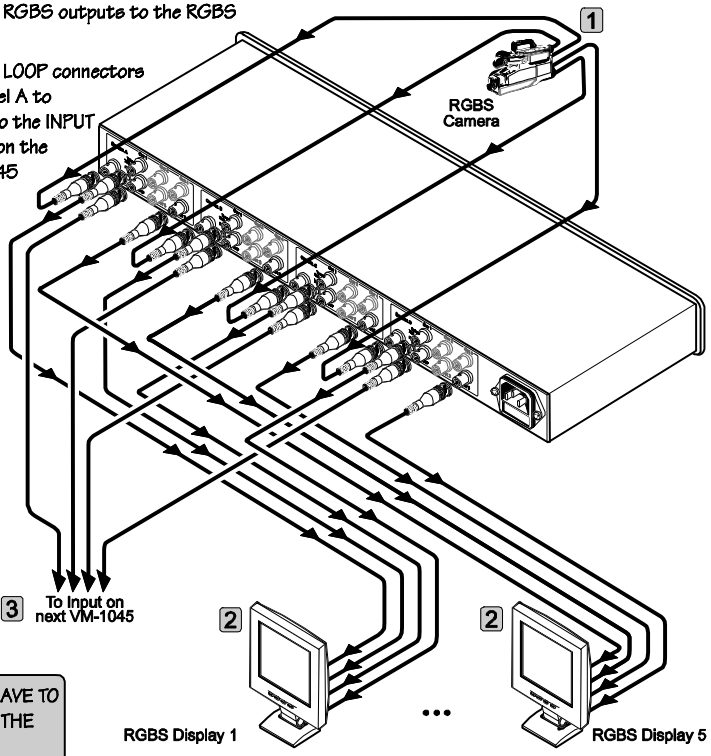
Mount the machine in a rack or stick the 4 rubber feet to the underside



Step 2: Connect the inputs and the outputs - see section 6

Connect the inputs and outputs to create a 1x1:5 RGBS DA

1. Connect the RGBS camera to the input
2. Connect the RGBS outputs to the RGBS displays
3. Connect the LOOP connectors (from channel A to channel D) to the INPUT connectors on the next VM-1045 machine



YOU DO NOT HAVE TO CONNECT ALL THE OUTPUTS

You can configure the unit in several different ways, see section 7.

Step 3: Turn the power ON

If required:

- Adjust the video EQ. and level per channel on the underside of the machine

3 Overview

The Kramer **VM-1045** is a high performance distribution amplifier for component video signals. The unit has four channels. Each channel includes seven BNC connectors: an input, a looping output, and five outputs.

The **VM-1045** can be configured as a 1x1:5 component RGB/S DA, a 2x1:5 s-Video (Y/C) DA or as a 4x1:5 composite video DA.

The channels can be interconnected via the looping outputs to form larger configurations. Also, several **VM-1045** machines can be cascaded via the looping outputs.

In particular, the **VM-1045**:

- Has a bandwidth of over 415MHz, ensuring transparent video performance and supporting SDI signals (for example, a 4x1:5 SDI DA)
- Features independent input signal termination, as well as level and EQ. controls per channel

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances and positioning your **VM-1045** away from moisture, excessive sunlight and dust

4 Your VM-1045 Video Component Distributor

Figure 1, Figure 2, Table 1 and Table 2 define the **VM-1045**:

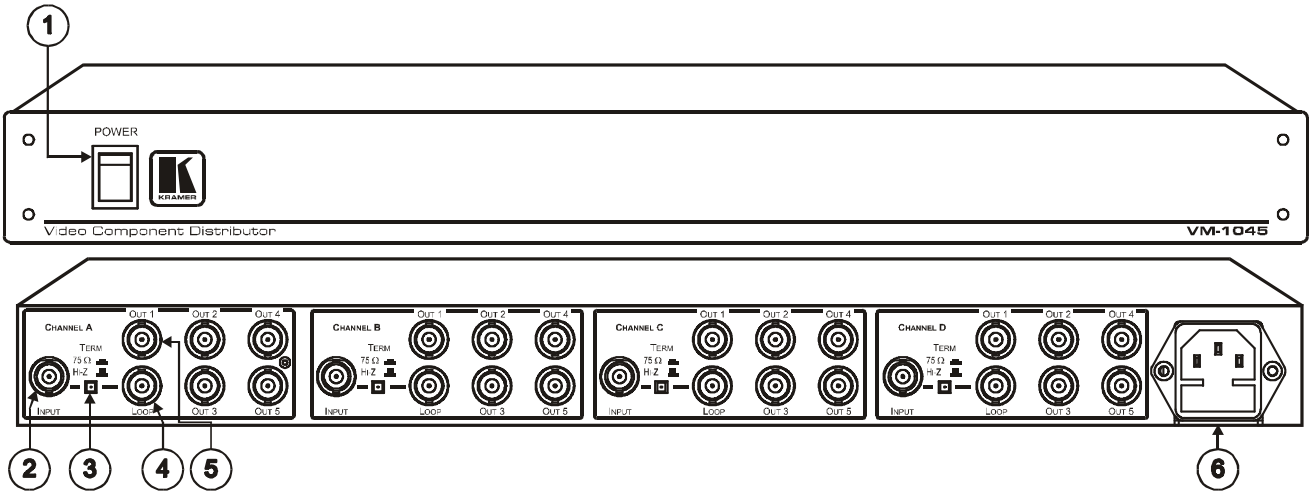


Figure 1: VM-1045 Video Component Distributor – Front and Rear View

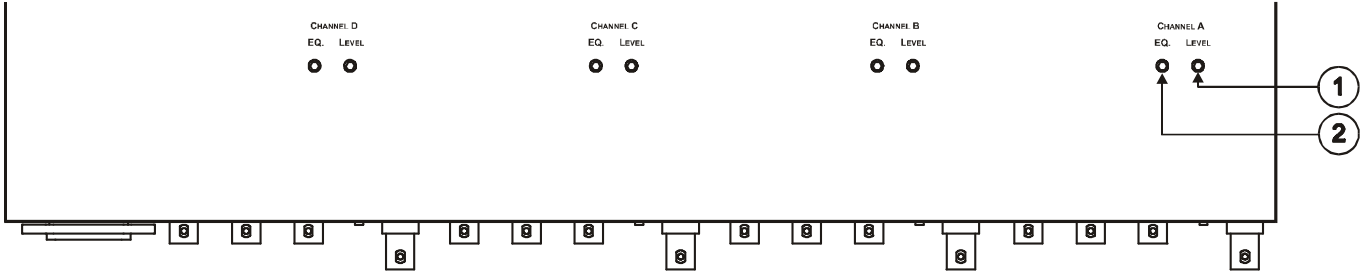


Figure 2: Underside of the VM-1045 Video Component Distributor

Table 1: VM-1045 Video Component Distributor Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch for turning the unit ON or OFF
2	*INPUT* BNC Connector	Connects to the video source (from CHANNEL A to CHANNEL D)
3	*TERM 75Ω / Hi-Z* Button[1]	Press to select 75Ω, release to select Hi-Z[2]
4	*LOOP* BNC Connector	Connect to an additional unit
5	*OUT* BNC Connector	Connect to the video acceptor (from OUT 1 to OUT 5 on each channel)
6	Power Connector with Fuse	AC connector enabling power supply to the unit

Table 2: Underside Features of the VM-1045 Video Component Distributor

#	Feature	Function
1	*LEVEL* Trimmer[1]	Adjusts[3] the video output level
2	*EQ.* Trimmer[1]	Adjusts[3] the video EQ. (equalization) compensation of the output

1 Independent controls per channel (from A to D)

2 For looping select Hi-Z

3 Insert a screwdriver into the small hole and carefully rotate it to adjust the level

5 Installing the VM-1045 on a Rack

This section describes what to do before installing on a rack and how to rack mount.

Before Installing on a Rack

Before installing on a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5 to +45 Deg. Centigrade
Operating humidity range	5 to 65% RHL, non-condensing
Storage temperature range	-20 to +70 Deg. Centigrade
Storage humidity range	5 to 95% RHL, non-condensing

CAUTION!!

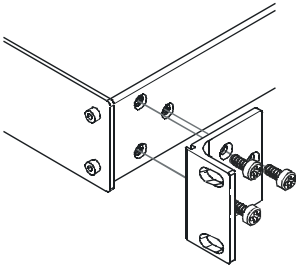
When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

- **In some models, the front panel may feature built-in rack ears**
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

6 Connecting a VM-1045 Video Component Distributor

To connect the **VM-1045** as illustrated in the example in Figure 3, do the following[1]:

1. Connect a component video source (for example, an RGBS camera) to the INPUT connectors.
2. Connect the LOOP BNC connectors (from channel A to channel D) to the INPUT BNC connectors[2] on the next **VM-1045** machine.
3. Connect the OUT 1 connectors of each channel[3] to the acceptor (for example, RGBS display 1).
4. Connect the OUT 5 connectors of each channel[3] to the acceptor (for example, RGBS display 5).
5. Connect the power cord[4] (not shown in this illustration).
6. If required, on the machine underside, for each channel, adjust the:
   - EQ.
   - LEVEL

1 Switch OFF the power on each device before connecting it to your VM-1045. After connecting your VM-1045, switch on its power and then switch on the power on each device. Switching on the VM-1045, recalls the previous setup from the non-volatile memory

2 On each channel

3 You do not need to connect all the outputs

4 We recommend that you use only the power cord that is supplied with this machine

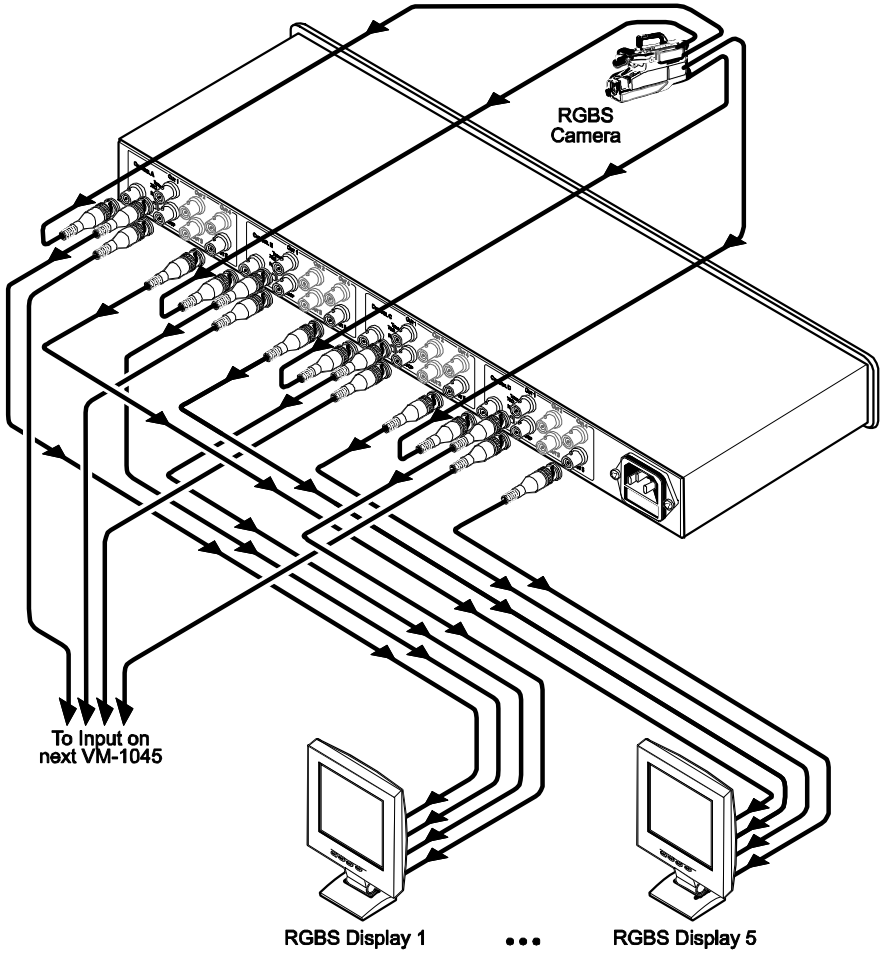


Figure 3: Connecting a VM-1045 Video Component Distributor

7 Configuring the VM-1045 Video Component Distributor

You can configure the **VM-1045** in several different ways, including, as a:

- 2x1:5 s-Video DA (see section 7.1)
- 4x1:5 composite video DA (see section 7.2)

The channels can be interconnected via the looping outputs to form larger configurations, for example a:

- 1:20 composite video DA (see section 7.3) or a 2x1:10 composite video DA
- 1:10 s-Video DA (see section 7.4)

7.1 Configuring a 2x1:5 s-Video (Y/C) DA

You can configure the **VM-1045** as a 2x1:5 s-Video (Y/C) DA (see Figure 4):

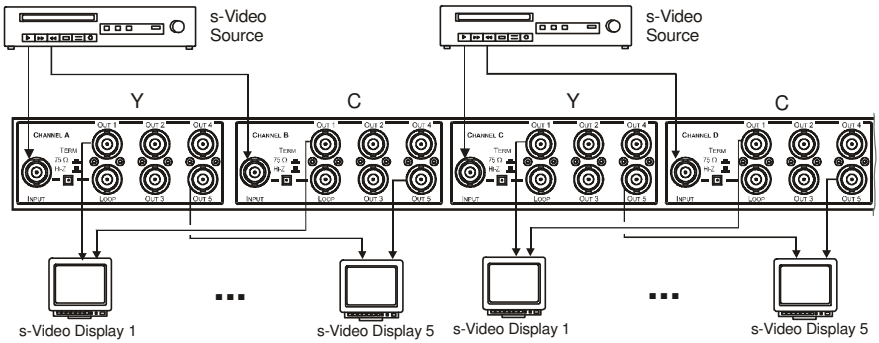


Figure 4: Configuring as a 2x1:5 s-Video (Y/C) DA

7.2 Configuring a 4x1:5 Composite Video DA

You can configure the **VM-1045** as a 4x1:5 composite video DA. The illustration in Figure 5 shows how to configure each channel:

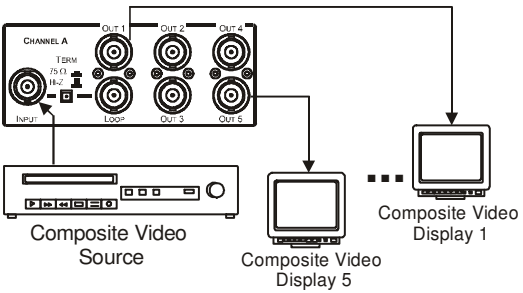


Figure 5: Configuring as a 4x1:5 Composite Video DA Configuration

7.3 Configuring a 1:20 composite video DA

Figure 6 illustrates the **VM-1045** as a 1:20 composite video DA:

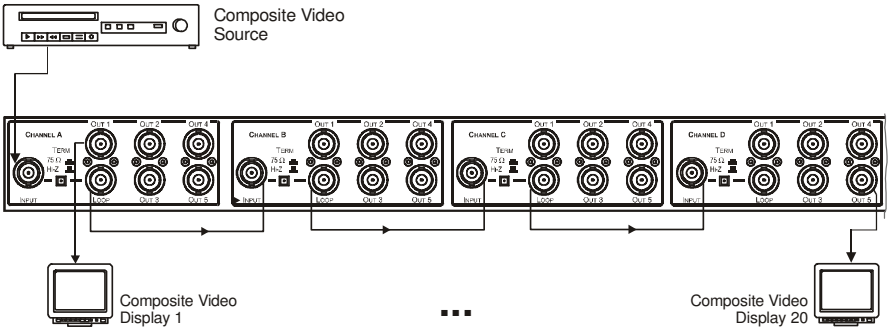


Figure 6: Configuring as a 1:20 Composite Video DA

7.4 Configuring a 1:10 s-Video (Y/C) DA

Figure 7 illustrates the **VM-1045** as a 1:10 s-Video DA:

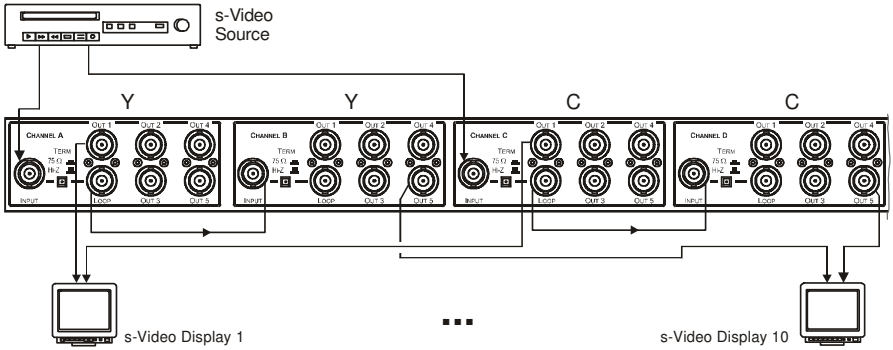


Figure 7: Configuring as a 1:10 s-Video DA

8 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[1] of the VM-1045 Video Component Distributor

INPUTS:	4 x 1 video inputs, 1Vpp/75Ω on BNC connectors with loop
OUTPUTS:	4 x 5 video outputs, 1Vpp/75Ω on BNC connectors
MAX. OUTPUT LEVEL:	2.7Vpp
BANDWIDTH (-3dB):	415MHz
DIFF. GAIN:	0.03%
DIFF. PHASE:	0.03 Deg.
K-FACTOR:	<0.05%
S/N RATIO:	73dB, 5MHz
CROSSTALK (all hostile):	-58dB
CONTROLS:	Level: –2dB to +6.1dB; EQ.: 0dB to 9dB@50MHz
COUPLING:	DC
POWER SOURCE:	90-240V AC, 50/60Hz, 2VA
DIMENSIONS:	19-inch (W), 7-inch (D) 1U (H) rack-mountable
WEIGHT:	2.6kg (8lbs.) approx
ACCESSORIES:	Power cord

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000280 REV 1